



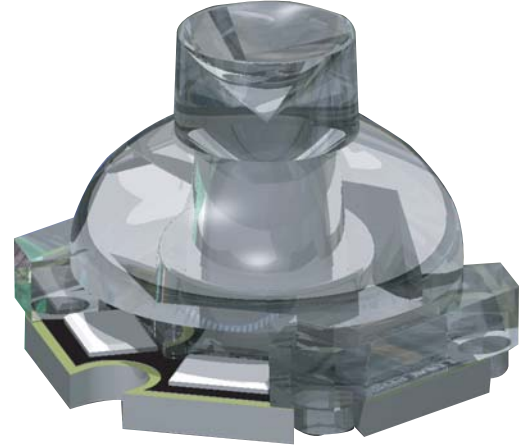
Side-Emitting Optic

The Carclo Side-Emitting Optic is ideal for applications where a narrow beam of light is required around a full 360° in one plane.

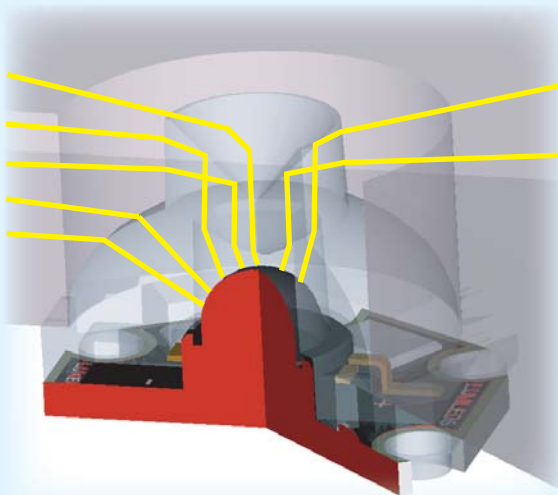
The Optic has been designed to fit neatly onto a Luxeon star board but can also be used with a Luxeon Emitter on a custom circuit board.

Typical uses are hazard lights, runway lights, harbour warning lights and, when used with a blue Luxeon, emergency service flashing beacons. The optic is particularly suited to feeding light into thick acrylic sheet for backlighting or light-guiding applications.

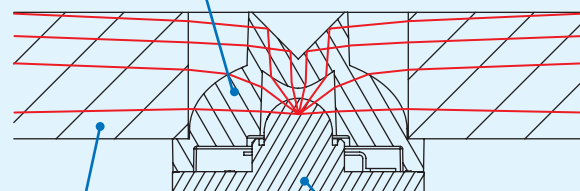
The optic is available in two versions; The 3/5 watt version is optimised for the recessed emitter on the 3 watt and 5 watt star board. The 1 watt version is optimised for the surface mounted emitter of the 1 watt star board and for the Luxeon emitter mounted on custom circuit boards.



LED OPTICS



Side-Emitting Optic



Clear Acrylic or Polycarbonate Sheet

Luxeon LED

How does it work?

Using a combination of reflective and refractive surfaces, the Side-Emitting Optic re-directs light from the LED into a narrow, tightly controlled beam.

Light leaving the LED upwards is focused by the central lens surface and collimated towards a conical reflector which deflects the beam through 90° onto a refractive cylindrical surface. Light leaving the LED sideways is focused by an anular lens and bent towards the horizontal axis.

Computer raytracing techniques have been used to design the optic and ensure that the two optical paths are balanced and operate at maximum efficiency.

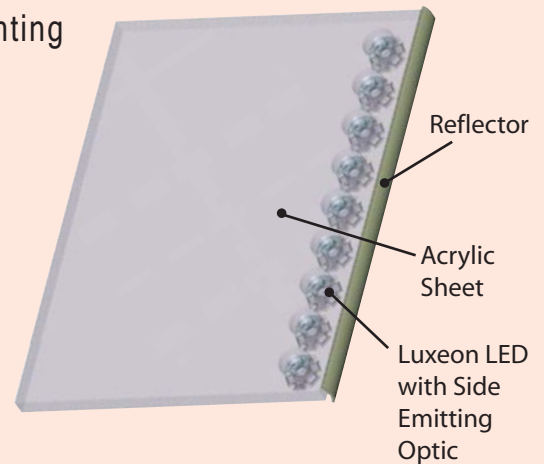


How to use the Side-Emitting Optic for Backlighting

The Side-Emitting Optic is the ideal solution for large scale backlighting applications such as poster illumination, roadside warning signs and LCD televisions that use light-guide illumination.

The light-guide is made from clear Acrylic or Polycarbonate sheet with a minimum thickness of 8mm. The underside has a graded texture finish to scatter light out of the guide. The Side-Emitting Optics are placed in 17.5mm (min.) diameter holes along the edge; the holes can be blind or through but the inside surfaces must be polished smooth.

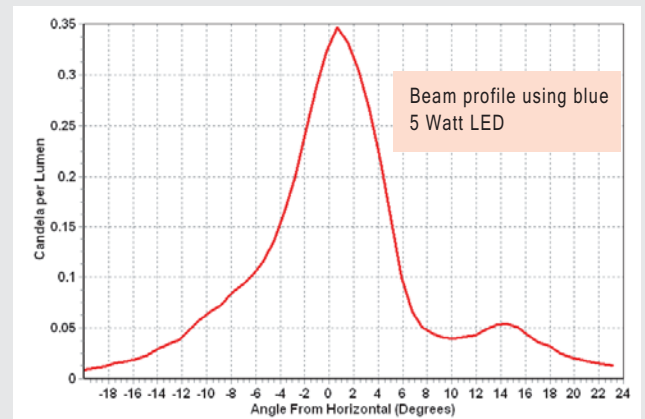
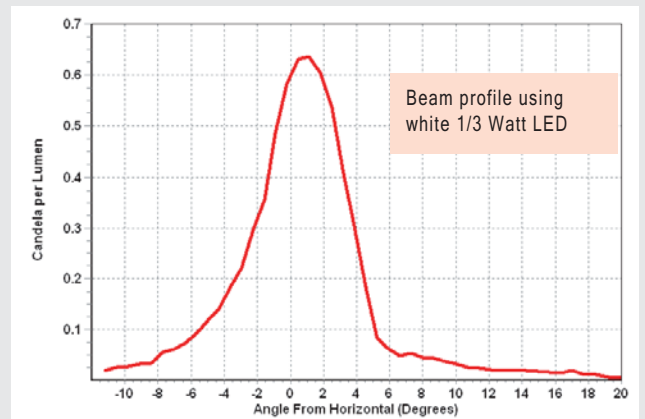
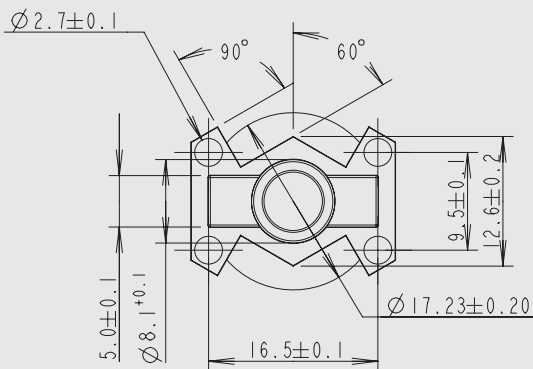
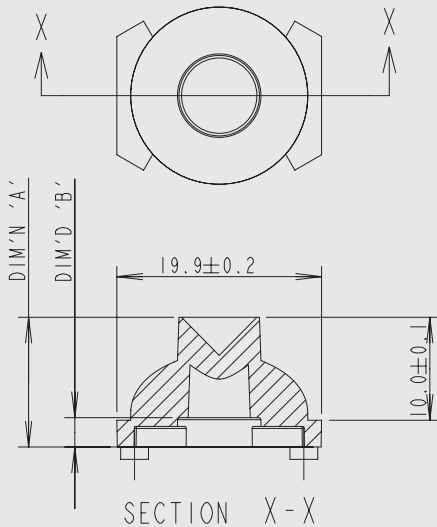
The performance can be further enhanced by adding a reflector along the edge nearest the LED's.



LED OPTICS

Technical Information

Part No.	Description	Dim'n 'A'	Dim'n 'B'
10039	For 1 Watt Luxeon starboard & emitter	12.6mm	7.6mm
10040	For 3 and 5 Watt Luxeon star boards	11.6mm	6.6mm



Note: The brightness per lumen of the side emitter with a 5 Watt device is approximately half that of the 1 Watt or 3 Watt devices. This is because the source size of the 5 Watt device is twice that of the 1 and 3 Watt devices. The energy density is therefore halved.